

IN THE CLAIMS

Please **cancel** claim 23.

Please **amend** the claims as follows.

Please **add** the following new claims.

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1. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase; and
- (c) ~~ribose-5-phosphate isomerase~~ phosphoglucoisomerase;
- (d) ~~transketolase~~;
- (e) ~~transaldolase~~; and
- (f) ~~phosphoglucoisomerase~~;

wherein ~~the~~ said substantially purified nucleic acid molecule comprises a nucleic acid sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 27, 225, ~~298, 311, 356, 569~~, 619 and complements thereof.

2. (Currently Amended) The substantially purified nucleic acid molecule according to claim 1, wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 27, 225, ~~298, 311, 356, 569~~, and 619 and complements thereof.

Claims 3-9 (Cancelled)

10. (Currently Amended) An isolated nucleic acid molecule comprising a sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a

nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, ~~4, 27~~, 225, ~~298, 311, 356, 569~~, 619 and complements thereof.

11. (Currently Amended) ~~The~~ An isolated nucleic acid molecule, ~~according to claim 10~~, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

12. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 1 or complement thereof.

13. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 4 or complement thereof.

14. (Cancelled)

15. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 27 or complement thereof.

16. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 225 or complement thereof.

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17. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 298 or complement thereof.

18. (Currently Amended) The isolated nucleic acid molecule according to claim ~~10~~ 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 311 or complement thereof.

19. (Currently Amended) The isolated nucleic acid molecule according to claim 40 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

20. (Currently Amended) The isolated nucleic acid molecule according to claim 40 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 569 or complement thereof.

21. (Currently Amended) The isolated nucleic acid molecule according to claim 40 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 619 or complement thereof.

22. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean 6-phosphogluconate dehydrogenase or fragment thereof, comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 14, 27 or and complements thereof.

23. (Cancelled)

24. (New) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase;
- (c) ribose-5-phosphate isomerase; and
- (d) transaldolase;

cl wherein the substantially purified nucleic acid molecule comprises a nucleic acid sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 0.2 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569, and complements thereof.

25. (New) The substantially purified nucleic acid molecule according to claim 24, wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.
26. (New) An isolated nucleic acid molecule comprising a sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 0.2X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569, and complements thereof.
27. (New) The isolated nucleic acid molecule according to claim 26, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.
28. (New) An substantially purified nucleic acid molecule that encodes a maize transketolase enzyme or fragment thereof comprising a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.
29. (New) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.
30. (New) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 14 or complement thereof.
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31. (New) An isolated nucleic acid molecule, wherein said isolated nucleic acid molecule consists of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.
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